

**TECHNICAL REVIEW AND EVALUATION FOR
FREEPORT-MCMORAN SIERRITA, INC.
AIR QUALITY PERMIT #42862**

I. COMPANY INFORMATION

Freeport- McMoRan Sierrita, Inc. (FMSI) operates an open-pit mine and mineral concentration facility in Pima County, Arizona. The facility is located at 6200 West Duval Mine Road in Green Valley. FMSI is a Class I major source as defined in Arizona Administrative Code (A.A.C.) Title 18, Chapter 2, Section 101.64 (R18-2-101.64). The facility-wide potential emissions of particulate matter (PM), particulate matter less than 10 microns in diameter (PM₁₀), sulfur dioxide (SO₂), and nitrogen oxides (NO_x) are above the Title V program major source threshold of 100 tons per year. FMSI has requested permit limitations to restrict the potential emissions of PM, PM₁₀, and SO₂ to below the Prevention of Significant Deterioration (PSD) program major source threshold of 250 tons per year.

A. Company Information

Facility Name: Freeport- McMoRan Sierrita, Inc.
Mailing Address: P.O. Box 527, Green Valley, AZ 85622-0527

B. Attainment Classification

This source is located in an attainment area for all pollutants.

II. PROCESS DESCRIPTION

FMSI produces copper concentrate, copper cathode, copper sulfate, molybdenum trioxide, molybdenum disulfide, and rhenium. The process operations (described in more detail below) include the following:

- Mining operations
- Fine ore storage and handling
- Molybdenum processing
- Natural gas heaters and boilers
- Miscellaneous and fugitive emission source process
- Copper sulfate plant
- Decant solids handling process

A. Mining operations

1. Ore Excavation Operations

Open pit mining operations occur at the Sierrita pit where ore material is mined from a number of active pit areas using drilling, blasting, haul truck loading, and dumping of blast materials. These activities result in fugitive emissions of PM and PM₁₀.

Fugitive PM and PM₁₀ emissions from haul roads are controlled by applying water

and/or other dust suppressants. PM and PM₁₀ emissions from ore excavation operations are minimized by similar means. FMSI also uses controlled blasting techniques and topographical containment to minimize impact to the ambient air.

Low-grade oxide ore from the mining operation is hauled by truck and placed onto leach fields where a solution of dilute sulfuric acid is applied to the field. The resulting leachate is collected and processed by a solution extraction/electrowinning (SXEW) recovery operation to produce copper cathode. In the solution extraction process, a solution is used to extract the copper from the solid ore and transfer it in the 'pregnant leach solution' to the electrolyte. Recovery of copper is accomplished using the electrowinning process at the Twin Buttes tankhouse.

2. Primary Crushing

Sulfide ore from the ore excavation operation is transferred to one of two primary crushers where the size of the ore is reduced to six inches or less. Each primary crusher (6A and 6B) is capable of processing 5,000 tons of ore material per hour.

The primary crushing operation emits both fugitive and non-fugitive PM and PM₁₀. Non-fugitive PM and PM₁₀ emissions are vented to a Venturi wet scrubber. FMSI proposes to replace the wet scrubber with two cartridge dust collectors, one for each primary crushing system. Fugitive PM and PM₁₀ emissions are controlled using spray bars and other similar means.

3. Overland Ore Conveying System

The crushed ore from the primary crushers (6A and 6B) is transported using an overland conveyor system to the Sierrita coarse ore stockpile. The conveyor system is a source of fugitive PM and PM₁₀ emissions which are minimized using water spray systems.

4. Secondary and Tertiary Crushing (Fine Crushing Plant)

Coarse ore is then transferred from the stockpile using a reclaim conveyor system to the secondary and tertiary crushing systems where the material is further reduced in size. Crushed material from each step is screened to remove material that is 5/8 inch and smaller. This small-sized material is then transferred to the fine ore bin where it is stored as feed for the ball mill operation. Larger material is sent back for further crushing.

Wet scrubbers are used to control PM and PM₁₀ emissions from the secondary and tertiary crushing operations while fabric filters are used to control emissions from the fine ore bin. FMSI plans to replace all wet scrubbers with cartridge dust collectors. Seven of the cartridge dust collectors will be vented inside the building, further reducing PM and PM₁₀ emissions to the atmosphere.

The renewal application includes requests to replace some aging crushers with newer units, reconfigure exhaust ductwork to allow for backup control during

maintenance and repair activities, and replace existing baghouses with cartridge dust collectors. The equipment is to be re-numbered to reflect the new equipment configuration.

5. Planned Quaternary Crushing

The renewal application includes a request to add a quaternary crushing system consisting of two High Pressure Grinding Roll (HPGR) crushers. The new HPGR systems will receive material from the fine crushing plant prior to delivery to the fine ore bin in the Sierrita Mill. Three cartridge dust collectors will be installed to collect emissions from the HPGR crushers, an HPGR fine ore storage bin, and associated conveyor transfer points. Two conveyor transfer points associated with conveying the final product from the quaternary system to the Sierrita Mill will be controlled by one of the cartridge dust collectors in the fine crushing plant.

B. Fine Ore Storage and Handling

1. Milling/Grinding and Flotation

Crushed ore from the fine ore bin is transferred to the milling/grinding circuit using a mill feed belt system located inside the mill building. At the milling/grinding circuit, the size of the crushed material is further reduced to that of sand using 16 single-stage ball mills. Ore and water are mixed together in each ball mill where the ore is pulverized as it passes through the mill.

Final grind material is then advanced for primary flotation which uses a mixture of liquid reagents to recover copper and molybdenum from the milled ore. The remaining material (which has had copper and molybdenum removed) is referred to as “tailing”. The tailing slurry is then thickened and deposited in the tailing dam.

Following primary flotation, the copper and molybdenum-containing material is then processed in a second flotation circuit where the molybdenum disulfide is separated from the final copper concentrate. The molybdenum disulfide is upgraded and filtered before being sent to the Molybdenum Processing Plant. The copper-containing fraction is thickened and filtered to produce the final copper concentrate. The final copper concentrate is shipped by rail to an off-site smelter or is stored on site.

2. Tailing

Tailing slurry flows from the concentrator for permanent disposal at the Sierrita tailing dam (Fugitive emissions from the tailing dam are controlled according to the Title V permit and the Tailing Dam Dust Control Management Plan).

3. Concentrate Storage

Copper concentrates are stored in covered and uncovered outdoor storage areas for loading and shipment off site. Fugitive emissions from movement of copper

concentrate are minimized by the high material moisture content.

4. Lime Handling

Bulk lime is used as pH control for various processes. In addition to enclosures, a wet scrubber is used to control PM and PM₁₀ emissions from lime handling.

C. Molybdenum Processing Plant

1. Unleached Molybdenum Sulfide Storage, Screening, and Handling

Molybdenum disulfide from the flotation process is filtered and transferred to the Molybdenum Processing Plant for drying and storage prior to further refining or shipment as necessary. Material is transferred within the Molybdenum Processing Plant via enclosed screw conveyors. A fabric filter is used to control emissions from storage bins and material handling activities. A wet scrubber controls emissions from dryers.

2. Leached Molybdenum Plant

Unleached molybdenum disulfide contains copper and lead sulfide as impurities which are removed using a hot ferric chloride leach. The impurity-containing liquid is then separated from the molybdenum-containing solids. The solid material (containing molybdenum disulfide) is then dried and stored. The copper is recovered from the liquid phase. The leach liquor is regenerated through chlorination.

A fabric filter controls particulate emissions from the storage bins and material handling. Particulate emissions from the dryers are controlled by one of two wet scrubbers. Chlorine and hydrochloric acid emissions from the ferric chloride leach processing area are controlled by a fume scrubber.

3. Molybdenum Roasting and Rhenium Recovery

Leached molybdenum disulfide is roasted to yield molybdenum trioxide (MO₃). Pollutants generated from roasting include SO₂, PM, and PM₁₀. PM and PM₁₀ are first removed using an electrostatic precipitator. SO₂ is then removed using a lime slurry scrubber with an associated mist eliminator. SO₂ emissions from this process are monitored using a continuous emission monitoring system (CEMS).

MO₃ is placed in storage bins. Most of MO₃ is packaged in the cannery for shipment off-site. Some is pressed into solid briquettes. PM and PM₁₀ emissions from material handling, storage, and packaging are controlled using fabric filters.

Rhenium oxide is recovered from the off gas of the molybdenum roasting process described above. Rhenium is condensed, collected, concentrated, and pumped to an ion exchange process for refining and shipment.

FMSI has submitted two permit revision applications for changes to the molybdenum roasting and rhenium recovery plant. The first (submitted on 12/19/05) included changes to the existing molybdenum sulfide baghouse to improve bag inspection and changeout operations. It would also allow FMSI to install a backup baghouse. This application also included a request for approval to install piping to the molybdenum sulfide concentrate filters to allow for continuous operation of both filters. The second application submitted on 12/12/06, requested approval to install a small storage bin and screw conveyor in the Rhenium Recovery Circuit in order to reduce ergonomic hazards associated with the addition of diatomaceous earth to the circuit. These applications have been incorporated into the renewal permit application and associated permit.

D. Natural Gas Heaters and Boilers

FMSI operates 13 process boilers and heaters that range from 1.2 to 25 million British thermal units per hour (MMBtu/hr). The units primarily use natural gas but are capable of burning propane. Additional fuel-burning equipment rated at less than 1 MMBtu/hr is used on site for building and water heating purposes.

E. Miscellaneous and Fugitive Emission Source Processes

1. Electrowinning Tankhouse

The Twin Buttes electrowinning tankhouse receives “pregnant” (copper-containing) electrolyte solution from the solution extraction (SX) plant. In each electrowinning tank, metallic copper is plated on cathode plates by applying electric current to the “pregnant” solution. Barren electrolyte solution is recycled back to the SX plant. Fugitive volatile organic compound (VOC) emissions are controlled by the use of balls or foam blankets or a surfactant.

2. Gasoline Storage Tanks

Three unleaded gasoline storage tanks equipped with submerged filling devices are located on site.

3. Road Rock Crushing and Screening Plant

Rock used for road base material and fill material is crushed in the portable rock crushing plant. The plant consists of a grizzly feeder, conveyors, a triple deck screen, a cone crusher, and a radial stacker. PM and PM₁₀ emissions from this operation are controlled by water sprays.

4. Miscellaneous Screens and Grizzlies

Miscellaneous portable dump hoppers, screens, and grizzly feeders are used to facilitate cleanup or classify trench bedding and other fine soil materials. These operations result in fugitive PM and PM₁₀ emissions.

5. Portable Screen Plant

FMSI operates a portable screen plant powered by a 160 horsepower (HP) diesel engine. The plant is used to separate spent steel grinding balls from undersize ore.

6. Magnetic Steel Recovery Plant

FMSI operates a magnetic steel recovery system consisting of six conveyor belts and two magnets that works in conjunction with the portable screen plant described above.

7. Electric Generators

FMSI also operates numerous small gasoline and diesel-fired internal combustion engines for emergency or standby service or for use with welders, compressors, light plants, water pumps, etc. All of these engines which were previously determined to be “insignificant” have been accounted for in the emission calculations. Inclusion of even these small emission sources is required for a synthetic minor permit approval. In estimating the emission rates of these sources, FMSI assumed no more than 1,000 hours of operation per year for all generators, except the portable screen plant generator (Source ID 124), the magnetic steel recovery plant generator (Source ID 125), the primary crusher basement generator (Source ID 126) and the Hydromet #3 headwall generator (Source ID 126). For the Hydromet #3 headwall generator, FMSI assumed 1500 hours per year of operation. Associated limits on the number of operating hours are included in the permit. These further support the annual limits.

F. Copper Sulfate Plant

FMSI’s copper sulfate plant uses a bleed stream of copper-enriched “mother” solution from the solution extraction plant. The ‘mother’ solution is chilled to precipitate copper sulfate pentahydrate crystals that are collected, dried, and then packaged. The plant includes a solution feed tank, cooler tanks, a chiller unit, wet crystal cyclones and centrifuges, and a low temperature natural gas dryer.

G. Decant Solids Handling Process

Decant solution from the flotation process is delivered to two cement decant ponds where the solution is allowed to dry. Stockpiled solids are converted to liquid slurry and recycled back to the flotation process for additional molybdenum recovery.

III. EMISSIONS

FMSI has the potential to emit (PTE) regulated air pollutants, including PM, PM₁₀, NO_x, carbon monoxide (CO) and SO₂ in excess of the 100 ton-per-year Title V major source threshold. FMSI has requested various equipment changes affecting the potential to emit, including the addition of process equipment and the replacement of several particulate control devices with more efficient cartridge dust collectors. FMSI has also requested enforceable emission limitations for PM, PM₁₀, SO₂, and NO_x emissions to remain below the applicable PSD major source threshold of 250 tons of each pollutant per year both before and after the proposed changes. For PM and PM₁₀ the 12-month rolling total permit limit is **230 tons per year** and for SO₂, the 12-month rolling total limit is **240 tons per year**. In order to keep NO_x emissions below the PSD major source threshold, the permit limits the annual number of hours that FMSI's generators can be operated. The limited number of generator operating hours also restricts CO emissions to below both the PSD and Title V major source thresholds.

Unrestricted potential emissions of all other PSD regulated pollutants are below the PSD major source thresholds. FMSI is a non-major source of HAP emissions, with potential emissions below 10 and 25 tons-per-year for any single HAP and total combined HAP, respectively.

The facility-wide potential-to-emit is summarized in Tables III-1A and III-1B below.

TABLE III-1A: FACILITYWIDE POTENTIAL TO EMIT PRIOR TO CARTRIDGE DUST COLLECTOR INSTALLATION

POLLUTANT	POTENTIAL EMISSIONS (TONS PER YEAR)
CO	62.3
NO _x	148.4
SO ₂	240
VOC	72.1
PM	230
PM ₁₀	230
Total HAP	1.53

TABLE III-1B: FACILITYWIDE POTENTIAL TO EMIT FOLLOWING

CARTRIDGE DUST COLLECTOR INSTALLATION

POLLUTANT	POTENTIAL EMISSIONS (TONS PER YEAR)
CO	62.3
NO _x	148.4
SO ₂	240
VOC	72.1
PM	230
PM ₁₀	230
Total HAP	1.53

IV. COMPLIANCE HISTORY

There have been seven Air Quality cases associated with this facility since September of 2003. The cases were initiated in September 2003, April 2004, March 2006, April 2006, September 2006, and September 2008. There have been ninety-eight facility inspections and forty file reviews since May of 1995. The details of the violations are provided in the following:

A. Non-compliance with Permit No. M190699P2-99, Attachment "B," September 9, 2003.

1. **Condition I.C.1 - Visibility Limiting Standard - Permittee shall not cause, suffer, allow, or permit diffusion of visible emissions, including fugitive dust, beyond the property boundary line within which the emissions become airborne, without taking reasonably necessary and feasible precautions to control generation or airborne particulate matter. Sources may be required to cease temporarily the activity or operation which is causing or contributing to the emissions until reasonably necessary and feasible precautions are taken.**

Fugitive windblown dust from the tailings impoundment at FMSI was observed crossing the property line at Duval Mine Road.

2. **Condition XI.A.1.a – Emissions Limitations – Permittee shall not cause, allow, or permit visible emissions from open areas, roadways and streets, storage piles or material handling in excess of 40% opacity measured in accordance with the Arizona Testing Manual, Reference Method 9.**

While conducting an EPA Reference Method 9 visible emissions evaluation of windblown particulate matter drifting off the tailings dam at FMSI, a 53% six minute average opacity reading was recorded, followed by a 42% six minute average opacity reading of particulate emissions crossing the northern lip of the tailings dam..

3. **Condition XI.A.1.b.7- A.A.C. R18-2-608 – Failure to take precautions to prevent excessive amounts of particulate matter from becoming airborne from construction of mineral tailings piles, such as by wetting, chemical stabilization, re-vegetation or other such means as approved by ADEQ.**

Between 1:22 and 1:34 pm, the inspector observed excessive amounts of particulate matter being generated from the active operational area of the tailings impoundment.

Compliance for the above mentioned issued was achieved on May 21, 2004, and the NOV was closed.

B. Non-compliance with Permit No. M190699P2-99, Attachment “B,” April 7, 2003.

Condition II.B.2.a and III.B.2.a – For each scrubber, the Permittee shall install, calibrate, maintain, and operate monitoring devices for the continuous measurement of the change in pressure of the gas stream through the scrubber and the scrubbing liquid flow rate to the scrubber. The monitoring devices must be calibrated on an annual basis in accordance with the manufacturer’s instructions or specifications.

On March 19, 2004, FMSI submitted a Permit Deviation Report which reported the failure to conduct the annual calibrations of Source IDs 074, 075, 112, and 113.

A response was received from FMSI on July 2, 2004, and the NOV was closed.

C. Non-compliance with Permit No. M190699P2-99, March 9, 2006.

Attachment “A,” Condition XVIII.A – The owner or operator shall make available to the Director such records as may be necessary to determine the conditions of the performance tests and; Attachment “B,” Condition II.D.1 - At all times...the Permittee shall, to the extent practicable, maintain and operate the primary crushing circuits and associated wet scrubbers in a manner consistent with good air pollution control practices for minimizing particulate matter emissions.

The water flow meter and pressure drop measuring device on Scrubber #6 were not functional during the performance test. As a result, FMSI was unable to create and provide records that are necessary to document the operating ranges for these parameters during the performance test. The operating ranges for these parameters are used to demonstrate proper and effective scrubber operations (i.e., good air pollution control practices) for minimizing particulate matter emissions.

A response was received from FMSI on May 8, 2006, and the NOV was closed.

D. Non-compliance with Permit No. M190699P2-99, Attachment “B,” September 7, 2006.

1. **Condition XI.A.1.(a) – The Permittee shall not cause, allow or permit visible emissions from storage piles in excess of 40% opacity measured in accordance with Arizona Testing Manual, Reference Method 9.**

Visible emissions from tailings piles exceeded 40% opacity at FMSI on August 25, 31, and September 4, 2006.

2. **Condition XI.A.1.(b) – The Permittee shall employ reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.**

FMSI's excess emissions reported on August 25, 31, and September 4, 2006, evidence that FMSI failed to employ reasonable precautions to prevent excessive emissions from the tailings piles.

3. **Condition XI.A.2.(c) – Permittee shall complete the Tailings Impoundment Environmental Activities Report weekly. This report shall include, when applicable, the current area of tailings deposition, the number of loads applied for each water truck, location of cattle which are part of the Holistics Resource Management Plan, the area of hydroseeding, and the areas of chemical dust suppressant application. On a semiannual basis, the report will include any recommendations for improving dust management at the Tailings Impoundment based on the results of a semiannual checklist of compliance with the measures specified in XI.A.1.b.(7)(b).**

Though both the semiannual reports of January 31 and July 11, 2006, indicate high opacity events, no recommendations for improving dust management at the Tailings Impoundment were made.

A response was received from FMSI on September 18, 2006, and compliance was documented, reserving the right to take additional action, on December 21, 2006. This case has been merged with the case listed in Condition IV.E below.

E. Non-compliance with Permit No. M190699P2-99, Attachment “B,” September 18, 2006.

1. **Condition XI.A.1.(a) – Permittee shall not cause, allow, or permit visible emissions from storage piles in excess of 40% opacity measured in accordance with Arizona Testing Manual, Reference Method 9.**

Based on excess emissions reported by FMSI to ADEQ on September 15, 2006, visible emissions from the tailings piles exceeded 40% opacity.

2. **Condition XI.A.1.(b) – Permittee shall employ reasonable precautions to prevent excessive amounts of particulate matter from becoming airborne.**

Based on the excess emissions from the tailing piles as reported by FMSI on September 11 and 15, 2006, FMSI failed to employ reasonable precautions to prevent excessive emissions from the tailings piles.

FMSI was required to provide the documentation showing the immediate action taken to prevent excessive amounts of particulate matter from the tailings piles from beginning to airborne by October 12, 2006. The NOV was closed, reserving the right to take additional action, on December 21, 2006. This case has been merged with the case listed in Condition IV.D above.

- F. In response to numerous dust complaints, an inspection of FMSI conducted on August 5, 2008, it was revealed that at approximately 5.15 PM, August 2, 2008, tailings dam dust from FMSI operations crossed over property lines into Green Valley residential area. Review of ADEQ's correspondence Tracking System found no evidence that FMSI submitted any excess emission, permit deviation, or emergency reports to ADEQ pertaining to August 2, 2008, tailing dust crossing property lines event. Correspondence for this case was received on October 1, 2008. A case was opened but no NOV was issued. The case was dismissed on November 26, 2008.

V. APPLICABLE REGULATIONS

As part of the Title V renewal, the Permittee performed a regulatory review and identified air quality regulations applicable to the existing and proposed new emission units at FMSI. Table V-1 summarizes the findings of the Department with respect to the applicability or non-applicability of specific regulations to emission units and emission units groups.

TABLE V-1: APPLICABLE REGULATIONS

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
Mining Operations					
0089- Ammonium Nitrate Storage	NA	No control	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources	Y	The equipment was installed prior to 8/24/82, (applicability date for 40 CFR 60 Subpart LL) and is therefore subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360. The process weight rate equation from R9-3-521 is the same as that included in PC Rule 17.16.360. The R9-3-521 and 17.16.360 equations both result in an emission limit that is more stringent than that calculated using the R18-2-721 equation. Pima County Rule 17.16.050 and PC SIP Rule 343 also apply. These requirements are equivalent except that 17.16.360 has the added requirement that no visible emissions shall cross the property boundary.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
					This process is not subject to the Compliance Assurance Monitoring (CAM) Program under 40 CFR 64 because a control device is not used to meet emission limits (40 CFR §64.2(a)(2)).
069, 095, 096 - Overland Ore Conveying – Transfer points A2 to A3, B2 to B3, and B3 to B4	1967 to 1981	Water spray	Same as above	Y	Equipment was installed prior to 8/24/82 and is therefore not subject to 40 CFR 60 Subpart LL. In addition, these emission units are not affected facilities under Subpart LL. Local and state rules apply as indicated above. This process is not subject to the Compliance Assurance Monitoring (CAM) Program under 40 CFR 64 because a control device is not used to meet emission limits (40 CFR §64.2(a)(2)).
066 - Blasting and 088 – Drilling	NA	Water and shrouding as necessary	A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.060, Fugitive Dust Producing Activities	Y	These are non point sources and are therefore subject to ADEQ and Pima County emission standards for existing and new nonpoint sources as indicated.
097, 077 - Haul Truck Dumping And Unpaved Roads	NA	Water and dust suppressant	A.A.C. R18-2-605, Roadways and Streets; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.060, Fugitive Dust Producing Activities; PC Rule 17.16.090, Roads and Streets; PC Rule 17.16.100, Particulate Materials;	Y	These activities are subject to the listed non point source standards under both state and Pima County rules.
Primary Crushing Operation					
113 – Primary Crushers 6A and	1996 (both	Wet scrubber to	New Source Performance Standards (NSPS)	Y	These crushers are subject to NSPS

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
6B	crushers)	be replaced by two cartridge dust collectors	40 CFR 60 Subpart A, General Provisions A.A.C R18-2-901(1) PC Rule 17.16.490(1) 40 CFR 60 Subpart LL, Standards of Performance for Metallic Mineral Processing Plants A.A.C R18-2-901(43); PC Rule 17.16.490(51); 40 CFR 60.382 (a), (b) 40 CFR 60.384 (a), (b) 40 CFR 60.385 (a), (b), (c), (d); 40 CFR 60.386 (a), (b), (c) 40 CFR 64, Compliance Assurance Monitoring (CAM) 40 CFR 64.3 (a) through (d); 40 CFR 64.4 (a) through (g); 40 CFR 64.5 (b); 40 CFR 64.7 (a) through (e); 40 CFR 64.9 (a), (b); PC SIP Rule 343, Visibility Limiting Standard		Subpart LL, Standards of Performance for Metallic Mineral Processing Plants because they began operation after August 24, 1982. The crushers are also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
072 and 102 - Outdoor Storage Piles – Coarse Ore	1970	Water spray; material moisture content	A.A.C. R18-2-607, Storage Piles; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.110, Storage Piles	Y	Storage piles are regulated under non-point source rules. Both Pima County and ADEQ rules apply.
Fine Ore Crushing Operations – Secondary and Tertiary Crushing					
112 - No. 6 and No. 8 Tertiary Crushers And Associated Discharge and 121 – Tertiary crushers, screens and transfer points	1968-2004	Wet scrubber to be replaced by cartridge dust collector	New Source Performance Standards (NSPS) 40 CFR 60 Subpart A, General Provisions A.A.C R18-2-901(1) PC Rule 17.16.490(1) 40 CFR 60 Subpart LL, Standards of Performance for Metallic Mineral Processing Plants A.A.C R18-2-901(43); PC Rule 17.16.490(51); 40 CFR	Y	These crushers are subject to NSPS Subpart LL, Standards of Performance for Metallic Mineral Processing Plants because they began operation after August 24, 1982. The crushers are also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			60.382 (a), (b); 40 CFR 60.384 (a), (b); 40 CFR 60.385 (a), (b), (c), (d); 40 CFR 60.386 (a), (b), (c). 40 CFR 64, Compliance Assurance Monitoring (CAM); 40 CFR 64.3 (a) through (d); 40 CFR 64.4 (a) through (g); 40 CFR 64.5 (b); 40 CFR 64.7 (a) through (e); 40 CFR 64.9 (a), (b); PC SIP Rule 343, Visibility Limiting Standard		
075 – Sierrita Secondary Scalping Screens	Post 2000	Wet scrubber to be replaced by cartridge dust collector	Same as Source ID 112.	Y	These screens are subject to NSPS Subpart LL, Standards of Performance for Metallic Mineral Processing Plants because they began operation after August 24, 1982. The screens are also subject to 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
002-007 - Sierrita Fine Crushing-Crushing, Screening, and Conveying 201-204 – Secondary screening 301-312 – Tertiary screening 401-403 – HP grinding roll operation	Post 1982	Wet scrubbers to be replaced by cartridge dust collectors	Same as Source ID 112.	Y	This operation is subject to NSPS Subpart LL because the equipment began operation after August 24, 1982. This operation is also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
008 - Fine Ore Transfer	1968	Wet scrubber to be replaced by cartridge dust collector	Same as Source ID 112.	Y	This operation is subject to NSPS Subpart LL because the equipment began operation after August 24, 1982. This operation is also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
Fine Ore Storage and Handling					
009-017 - Fine Ore Storage – Sierrita	1968 (scheduled for modificati	Baghouses to be replaced by cartridge	Same as Source ID 112	Y	This operation is subject to NSPS Subpart LL, Standards of Performance for Metallic Mineral Processing Plants because it was/will be modified after

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
	on)	dust collectors			August 24, 1982. This operation is also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
116 – 8B/8C Transfer This emission point is being eliminated and exhaust will be vented to Source ID 009.	1968 (scheduled for modification)	Wet Scrubber	Same as Source ID 112	Y	This operation is subject to NSPS Subpart LL, Standards of Performance for Metallic Mineral Processing Plants because it was/will be modified after August 24, 1982. This operation is also subject 40 CFR 64 because the pre-control potential emission rate of PM is above the applicable major source threshold.
018-033 – Mill Material Handling System	1968-1970	Wet Scrubbers	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources 40 CFR 64, Compliance Assurance Monitoring (CAM); 40 CFR 64.3 (a) through (d); 40 CFR 64.4 (a) through (g); 40 CFR 64.5 (b); 40 CFR 64.7 (a) through (e) 40 CFR 64.9 (a), (b)	Y	The equipment was installed prior to 8/24/82, the applicability date for 40 CFR 60 Subpart LL. The changes approved in the permit do not result in modification of this equipment (modification would trigger 40 CFR 60 Subpart LL). The equipment is therefore subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360. The process weight rate equation from R9-3-521 is the same as that included in PC Rule 17.16.360. The R9-3-521 and 17.16.360 equations both result in an emission limit that is more stringent than that calculated using the R18-2-721 equation. Both Pima County Rule 17.16.050 and PC SIP Rule 343 apply. CAM applies because pre-control emissions of PM are above 100 tons per year and controls are required to meet the standard.
063 – Slaked Lime Handling System	1968	Wet Scrubber	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B,	Y	The applicable regulations are the same as those described above except that CAM does not apply. The uncontrolled PM emission rate for the lime handling system (capacity of 10 tons per hour) is below 100 tons per year. Uncontrolled PM emissions were calculated using the

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			General Provisions; A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources		low moisture ore emission factor included in Table 11.24-2 from EPA's AP 42 document.
073 – Outdoor Storage Piles – Copper Concentrate	1968	Material moisture content	A.A.C. R18-2-607, Storage Piles; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.110, Storage Piles	Y	Both state and local nonpoint source emission standards apply.
Molybdenum Plant					
042 – Molybdenum Sulfide Storage, Screening, and Handling	1969-1994	Baghouse	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360,	Y	NSPS 40 CFR 60 Subpart LL does not apply to this operation because the process is not an affected facility at the metallic mineral processing plant. The process is however subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360. The process weight rate equation from R9-3-521 is the same as that included in PC Rule 17.16.360. The R9-3-521 and 17.16.360 equations both result in an emission limit that is more stringent than that calculated using the R18-2-721 equation. Pima County Rule 17.16.050 and PC SIP Rule 343 also apply.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			Standards of Performance for Nonferrous Metals Industry Sources		CAM does not apply because pre-control emissions of PM are below 100 tons per year.
041 – Unleached Molybdenum Sulfide Dryers	1968-1995	Wet Scrubber	Same as Source ID 042.	Y	Same as Source ID 042.
059 – Cannery Baghouse	1968	Baghouse	Same as Source ID 042.	Y	Same as Source ID 042.
048 – Molybdenum Oxide Storage, Screening, and Handling	1968	Baghouse	Same as Source ID 042	Y	Same as Source ID 042.
119 – Rhenium Recovery Operations		None	Same as Source ID 042.	Y	Same as Source ID 042.
053, 054 – Leached Molybdenum Sulfide Dryers	1968	Wet Scrubber	<p>Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources;</p> <p>A.A.C. R18-2-702.B, General Provisions;</p> <p>A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources;</p> <p>Pima County (PC) SIP Rule 343, Visibility Limiting Standard;</p> <p>PC Rule 17.16.050, Visibility Limiting Standard;</p> <p>PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources</p> <p>40 CFR 64, Compliance Assurance Monitoring (CAM)</p> <p>40 CFR 64.3 (a) through (d)</p> <p>40 CFR 64.4 (a) through (g)</p> <p>40 CFR 64.5 (b)</p> <p>40 CFR 64.7 (a) through (e)</p>	Y	<p>NSPS 40 CFR 60 Subpart LL does not apply to this operation because the process is not an affected facility at the metallic mineral processing plant. The process is however subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360.</p> <p>CAM applies to this operation because uncontrolled potential PM emissions are estimated to be above 100 tons per year.</p>

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			40 CFR 64.9 (a), (b)		
058 – Molybdenum Roasting and Rhenium Recovery	1968 - 1975	Multi Cyclone, Electrostatic Precipitator, Lime Slurry Scrubber, and Mist Eliminator	Same as Source ID 053, 054.	Y	Same as Source IDs 053 and 054. Note that CAM only applies to PM/PM ₁₀ emissions from this process even though SO ₂ emissions are also above the applicability threshold. This is because 40 CFR §64.2(b)(vi) provides an exemption for sources with a permit requirement to continuously monitor emissions, as is the case at this facility.
118 – Molybdenum Leach Plant	1970/ 2005	Fume Scrubber	A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-730, Standards of Performance for Unclassified Sources PC Rule 17.16.430, Standards of Performance for Unclassified Sources	Y	These rules apply to the fume scrubber as it is an unclassifiable source.
044 – Molybdenum Sulfide Dump Hopper	1990	Material Moisture Content	A.A.C. R18-2-606, Material Handling; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.100, Particulate Materials	Y	This is a non point source and is therefore subject to ADEQ and Pima County emission standards for existing and new nonpoint sources as indicated.
045 and 117 – Molybdenum Screw Conveyor #1 and #2	1995, 2001	Material Moisture Content	A.A.C. R18-2-606, Material Handling; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.100, Particulate Materials	Y	These are non point sources and are therefore subject to ADEQ and Pima County emission standards for existing and new nonpoint sources as indicated.
Natural Gas Heaters and Boilers (ID #062)					
Boiler – Molybdenum Leach Heating (Primary) 8.3 million British thermal units per hour (MMBtu/hr)	1960	None	A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-724, Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment; Pima County (PC) SIP Rule	Y	This boiler is not subject to NSPS 40 CFR 60 Subpart Dc, Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units, because it is less than 10 MMBtu/hr and it was installed prior to the applicability date of June 9, 1989. It is, therefore, subject to state and

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			343, Visibility Limiting Standard; PC Rule 17.16.040, Standards and Applicability (from Article 2, Visible Emission Standards); PC Rule 17.16.165, Standards of Performance for Fossil-fuel Fired Industrial and Commercial Equipment		Pima County existing source performance standards. The generally-applied Pima County visibility standards also apply. This boiler is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons/year.
Mine Truck Shop Wash Heater 0.9 MMBtu/hr	2006	None	Same as above.	Y	This heater is not subject to NSPS due to the small size. This heater is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Rhenium Plant Calcining Operations and Water Heater 1.2 MMBtu/hr	1997	None	Same as above.	Y	This heater is not subject to NSPS due to the small size. It is also exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Molybdenum Dryer Oil Heating Systems 1 and 2 6.3 MMBtu/hr each	1968	None	Same as above.	Y	These heaters pre-date 40 CFR 60 Subpart Dc and are below the size threshold for the NSPS. They are also exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Change Room Boiler 2.0 MMBtu/hr		None	Same as above.	Y	This boiler is not subject to NSPS due to its small size. It is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Solution Extraction Electrolyte Heater 2.6 MM Btu/hr	1979	None	Same as above.	Y	This heater pre-dates 40 CFR 60 Subpart Dc and it is below the size threshold for the NSPS. It is also exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Molybdenum Autoclave Boiler 2.0 MMBtu/hr	Pre-1980	None	Same as above	Y	This boiler pre-dates 40 CFR 60 Subpart Dc and it is below the size threshold for the NSPS. It is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Electrowinning Cathode Wash Heater 3.0 MMBtu/hr	1993	None	Same as above.	Y	This heater is not subject to NSPS due to the small size. It is exempt from CAM because no control device is used and emissions of all pollutants are

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
					below 100 tons per year.
Molybdenum Briquette Heater 3.5 MMBtu/hr	1989	None	Same as above.	Y	This heater is not subject to NSPS due to the small size. It is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Molybdenum Leach Heating (Standby) 25 MMBtu/hr	Pre-1970	None	Same as above.	Y	This heater pre-dates 40 CFR 60 Subpart Dc. It is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Copper Sulfate Boiler 2.88 MMBtu/hr	2004	None	Same as above.	Y	This boiler is not subject to NSPS due to the small size. It is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Miscellaneous fuel burning equipment less than 1 MMBtu/hr	NA	None	Same as above.	Y	These are not subject to NSPS due to their small size. They are exempt from CAM because no control device is used and emissions of all pollutants are less than 100 tons per year.
Miscellaneous and Fugitive Emission Sources					
076 – Solution Extraction (SX) Plant #1, #2, and #3	NA	Closed mixer/settler tanks	A.A.C. R18-2-730, Standards of Performance for Unclassified Sources PC Rule 17.16.430, Standards of Performance for Unclassified Sources	Y	This is an unclassified source subject to state and Pima County requirements.
078 – Fixed Roof Gasoline Storage Tanks #ML-11(1), ML-11(2), and SP-13 12,000 gallons each	1990	None	A.A.C. R18-2-710, Standards of Performance for Existing Storage Vessels for Petroleum Liquids PC Rule 17.16.230, Standards of Performance for Existing Storage Vessels for Petroleum Liquids 40 CFR 63 Subpart CCCCCC, National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities	Y	40 CFR 60 Subpart Kb applies to petroleum liquid storage vessels constructed after July 23, 1984, with a capacity greater than or equal to 75 cubic meters (19,813 gallons). These tanks are below the size threshold for 40 CFR 60 Subpart Kb. The Permittee must comply with 40 CFR 63 Subpart CCCCCC by January 10, 2011. Storage tank SP-13 is subject to 40 CFR 63.11116 for tanks with monthly throughput less than 10,000 gallons and tanks ML-11(1) and (2) are subject to 40 CFR 63.11117 for tanks with monthly throughput between 10,000 and 100,000 gallons. State and Pima County rules also apply.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
087 – Sierrita Tailings Impoundment	NA	Tailing Dam, Dust Control Management Plan	A.A.C. R18-2-608, Mineral Tailings; A.A.C. R18-2-614, Evaluation of Nonpoint Source Emissions; PC SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.120, Mineral Tailings	Y	This is a nonpoint source subject to both state and Pima County regulation.
093 – Road Rock Crushing and Screening Plant (400 ton per hour capacity)	1966	Spray Bars	A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-722, Standards of Performance for Existing Gravel or Crushed Stone Processing Plants; Arizona SIP R9-3-522 Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.040, Standards and Applicability (from Article 2, Visible Emission Standards); PC Rule 17.16.370, Standards of Performance for Gravel or Crushed Stone Processing Plants	Y	This rock crushing and screening plant is not subject to NSPS 40 CFR 60 Subpart OOO because it was installed and operated prior to August 31, 1983. It is, therefore, subject to state and Pima County regulations. The plant is exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
124 – Portable Screen Plant	1978	Spray Bars	Same as Source ID 093.	Y	Same as Source ID 093.
125 – Magnetic Steel Recovery Plant with 168 Horsepower (HP) Diesel Generator	1977-2003	Water Spray	New Source Performance Standards (NSPS) 40 CFR 60 Subpart A, General Provisions A.A.C R18-2-901(1) PC Rule 17.16.490(1) 40 CFR 60 Subpart LL, Standards of Performance for Metallic Mineral Processing Plants A.A.C R18-2-901(43) PC Rule 17.16.490(51) 40 CFR 60.382 (a), (b) 40 CFR 60.384 (a), (b) 40 CFR 60.385 (a), (b), (c), (d) 40 CFR 60.386 (a), (b), (c)	Y	The equipment was constructed after August 24, 1982. It is, therefore, subject to NSPS. CAM does not apply because the equipment does not use a control device as defined in 40 CFR §64.1.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			PC SIP Rule 343, Visibility Limiting Standard Generator: A.A.C. R18-2-719, Standards of Performance for Existing Stationary Rotating Machinery		
105 – Twin Buttes Electrowinning Tankhouse	1975	Surfactant, Polypropylene Balls	A.A.C. R18-2-730, Standards of Performance for Unclassified Sources PC Rule 17.16.430, Standards of Performance for Unclassified Sources	Y	This is an unclassified source subject to state and Pima County requirements.
120 – Miscellaneous Screens and Grizzlies		Water as necessary	A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-722, Standards of Performance for Existing Gravel or Crushed Stone Processing Plants; Arizona SIP R9-3-522 Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.040, Standards and Applicability (from Article 2, Visible Emission Standards); PC Rule 17.16.370, Standards of Performance for Gravel or Crushed Stone Processing Plants		These facilities are not subject to NSPS 40 CFR 60 Subpart OOO because stand-alone screening operations are exempt. They are exempt from CAM because no control device is used and emissions of all pollutants are below 100 tons per year.
Copper Sulfate Plant					
122 – Dryer, Screen, and Material Handling Facilities	2004	Cartridge Dust Collector	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-721, Standards of Performance for	Y	NSPS 40 CFR 60 Subpart LL does not apply to this operation because the process is not an affected facility at the metallic mineral processing plant. The process is however subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360. The process weight rate equation from

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources		R9-3-521 is the same as that included in PC Rule 17.16.360. The R9-3-521 and 17.16.360 equations both result in an emission limit that is more stringent than that calculated using the R18-2-721 equation. Pima County Rule 17.16.050 and PC SIP Rule 343 also apply. CAM does not apply because pre-control emissions of PM are below 100 tons per year.
122 – Natural Gas Boiler	2004	None	Same as Source ID 062.		Same as Source ID 062.
Decant Solids Handling Facility					
123 – Front-end Loader and Screw Conveyor	2004	None	Arizona State Implementation Plan (SIP) R9-3-521, Standards of Performance for Nonferrous Metals Industry Sources; A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-721, Standards of Performance for Nonferrous Metals Industry Sources; Pima County (PC) SIP Rule 343, Visibility Limiting Standard; PC Rule 17.16.050, Visibility Limiting Standard; PC Rule 17.16.360, Standards of Performance for Nonferrous Metals Industry Sources	Y	NSPS 40 CFR 60 Subpart LL does not apply to this operation because the process is not an affected facility at the metallic mineral processing plant. The process is however subject to existing source rules: A.A.C. R18-2-702.B, R18-2-721, SIP rule R9-3-521, and PC Rule 17.16.360. The process weight rate equation from R9-3-521 is the same as that included in PC Rule 17.16.360. The R9-3-521 and 17.16.360 equations both result in an emission limit that is more stringent than that calculated using the R18-2-721 equation. Pima County Rule 17.16.050 and PC SIP Rule 343 also apply. CAM does not apply because pre-control emissions of PM are below 100 tons per year.
123 – Feed Hopper	2004	None	New Source Performance Standards (NSPS) 40 CFR 60 Subpart A, General Provisions A.A.C R18-2-901(1) PC Rule 17.16.490(1) 40 CFR 60 Subpart LL, Standards of Performance for Metallic Mineral Processing Plants A.A.C R18-2-901(43) PC Rule 17.16.490(51) 40 CFR 60.382 (a), (b)		The equipment was constructed after August 24, 1982. It is, therefore, subject to NSPS. CAM does not apply because the equipment does not use a control device as defined in 40 CFR §64.1.

Source ID	Start-up date	Control Equip.	Regulation(s)	Applicable? (Y/N)	Verification
			40 CFR 60.384 (a), (b) 40 CFR 60.385 (a), (b), (c), (d) 40 CFR 60.386 (a), (b), (c) PC SIP Rule 343, Visibility Limiting Standard		
All Generators except the new Hydromet #3 Headwall Generator, Truck Shop Generator, and SCC Emergency Generator	Pre-2006	None	A.A.C. R18-2-702.B, General Provisions; A.A.C. R18-2-719, Standards of Performance for Existing Stationary Rotating Machinery	Y	These generators are not subject to NSPS Subpart IIII because they were manufactured before the 2006 applicability date.
Hydromet #3 Headwall Generator, Truck Shop Generator, and SCC Emergency Generator	To be Replaced	None	NSPS 40 CFR 60 Subpart A, General Provisions A.A.C. R18-2-901(1) PC Rule 17.16.490(1) 40 CFR 60 Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines	Y	These generators are subject to NSPS Subpart IIII because they were manufactured after the 2006 applicability date.
Spark Ignition Internal Combustion Engines not yet installed	Not Yet Installed	None	40 CFR Subpart JJJJ, Standards of Performance for Stationary Spark Ignition Internal Combustion Engines	Y	This standard does not currently apply to generators at the facility but the facility expects this to apply to new/replaced spark ignition internal combustion.
Reciprocating Internal Combustion Engines	Pre-2006	None	40 CFR 63 Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Y	There are no substantive requirements in this standard that apply to the Permittee.

VI. PREVIOUS PERMITS AND CONDITIONS

A. Previous Permits

Table VI-1 lists the previous permits that have been issued to FMSI.

TABLE VI-1: PREVIOUS PERMITS

Revision No.	Issue Date	Description
31479	1/8/04	Minor permit revision to allow the relocation of the #11 H8000 Tertiary Crusher to the #9 Tertiary Crusher location and the concurrent relocation of the #9 Tertiary Crusher to the #11 Tertiary Crusher location.

Revision No.	Issue Date	Description
31648	8/20/04	Minor revision to allow installation of a new wet scrubber (ID 121)
32531	11/10/04	Minor revision to allow installation of a copper sulfate plant
33180	2/3/05	Minor revision to allow installation of a decant solids handling facility
33382	2/3/05	Minor revision to remove #8 tertiary crusher and relocate #11 tertiary crusher to its foundation
34373	7/28/05	Minor revision to allow bidirectional operation of conveyor belt #7A
35636	8/10/06	Significant revision to incorporate provisions from Consent Decree CIV 04-312 TUC FRZ
38448	8/12/06	Minor revision to allow installation of a magnetic steel recovery system
34065	Pending – Incorporated into the renewal	Minor revision to allow replacement of No. 2 and No. 4 tertiary crushers and associated screens
38720	Pending – Incorporated into the renewal	Minor revision to allow replacement of secondary scalping screens, installation of an alternate molybdenum sulfide baghouse, and continuous operation of the larox pressure filters
34448	Pending – Incorporated into the renewal	Minor revision to allow installation of two additional ferric chloride leach vessels, screw conveyor and solar drying pad
34643	Pending – Incorporated into the renewal	Minor revision to allow installation of a small portable screening plant
42848	7/18/07	Minor revision to allow installation of a storage bin and screw conveyor for the addition of filter media to the rhenium circuit
Submitted 12/21/07	Pending – Incorporated into the renewal	Minor permit revision to allow replacement of a secondary crusher and installation of a new cartridge dust collector.
Submitted 1/24/08	Pending – Incorporated into the renewal	Minor permit revision to allow installation of an alternate wet scrubber for the existing lime storage bin and associated material handling (ID 063).
46698	6/24/08	Minor permit revision to allow addition of a new wet scrubber in the lime handling facility.
46490	5/1/08	Minor permit revision to allow replacement of one existing Allis-Chalmers secondary crusher with a new Sandvik H8800 crusher.

Revision No.	Issue Date	Description
47188	9/8/08	Minor permit revision to allow construction of two adjacent pilot plants. The first is for the use of an ion exchange (IX Plant) to remove sulfates from groundwater. The second pilot plant, Sequential Metal Extraction plant (SME Plant), is for the use of sodium hydrosulfide to sequentially precipitate discrete copper, zinc/cadmium, and nickel/cobalt sulfide concentrates from pregnant leach solution (PLS) bleed stream from the existing Sierrita Solvent Extraction (SX) plant.

B. Previous Permit Conditions

The following is a discussion of the previous operating permit #M190699P2-99 and subsequent revisions that were issued to the source. Pending revisions have been incorporated into the renewal permit.

Minor Permit Revision #31479

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment "C"	X				Revised to include dates of installation. The equipment configuration in the new permit includes additional changes.

Minor Permit Revision #31648

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	

Attachment “B”, Conditions III.C.1 and III.C.2	X				The performance testing requirements of Conditions III.C.1 and III.C.2 have been updated to include performance testing requirements for the new permit term.
Attachment “C”		X			Attachment C, Source ID 121 remains.

Minor Permit Revision #32531

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment “B”, Condition XIII	X				The copper sulfate plant requirements have been moved to Condition X with general requirements included in Condition III and IV. Compliance Assurance Monitoring Requirements have been added and monitoring, recordkeeping, and reporting requirements have been updated to support the facility-wide limits.
Attachment “C”	X				The boiler listed under the copper sulfate plant in the equipment list of Attachment “C” has been moved to Section X for boilers.

Minor Permit Revision #33180

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	

Attachment "B", Condition XIV	X				The requirements have been included into Conditions X with general requirements included in Conditions III and IV.
Attachment "C"	X				The equipment list has been updated to reflect the addition of new equipment.

Minor Permit Revision #33382

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment "C"	X				The equipment list has been updated to reflect the proposed equipment configuration.

Minor Permit Revision #34373

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment "B", Condition III.C.1	X				The performance testing requirements have been updated to include performance testing requirements for the new permit term.
Attachment "B", Condition III.F			X		Initial notification requirements no longer apply.
Attachment "C"	X				The equipment list has been updated to reflect the proposed equipment configuration.

Significant permit revision #35636

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	

Attachment “B”	X				Attachment “B” was revised to incorporate Consent Decree CIV 04-312 TUC FRZ. The requirements have been included in this permit.
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Minor Permit Revision #38448

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment “B”, Condition XV	X				Requirements for the Magnetic Steel Recovery System have been moved to Attachment “B”, Condition X, with generator requirements included in Conditions XV and XVI.
Attachment “C”	X				The equipment list has been updated to reflect the addition of new equipment.

Minor Permit Revision #42848

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment “C”		X			The equipment list has been updated to reflect the addition of new equipment.

Minor Permit Revision #46698

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	

Attachment “B”, Condition VII.B.1	X			X	Requirements have been included in Attachment “B”, Condition VIII of this permit. Some requirements have been streamlined.
Attachment “C”	X				Addition of an alternate wet scrubber to ID 063.

Minor Permit Revision #46490

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment “B”, Condition III.B.2.e	X				Bi-weekly monitoring requirements have been included in Condition II.I of Attachment “B”.
Attachment “B”, Condition III.D.2	X				These requirements of 40 CFR 60 Subpart LL have been included in Condition III of Attachment “B”

Minor Permit Revision #47188

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Attachment “B”, Condition XVI			X		The permit has been renumbered. The requirements for this pilot plant have been removed as it is no longer operational.
Attachment “B”, Condition XVII			X		The permit has been renumbered. The requirements for this pilot plant have been removed as it is no longer operational.
Attachment “C”	X				The equipment list has been revised to exclude Source IDs 127 and 128.

C. Changes to Previous Permit Conditions

1. Summary of Changes

The previous permit was revised to reflect current versions of all applicable requirements and to include synthetic minor limitations. These changes affected

nearly all sections of Attachment B. Table VI-2 highlights changes that have been made to the previous permit conditions.

Table VI-2: SUMMARY OF CHANGES TO OPERATING PERMIT #M190699P2-99

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Att. B	x				<p>1. Added PM, PM₁₀, and SO₂ synthetic minor emission limits, operational limits and associated monitoring, recordkeeping, and reporting requirements (see discussion below).</p> <p>2. Added compliance assurance monitoring (CAM) requirements.</p> <p>3. Added 40 CFR 60 Subpart IIII and JJJJ requirements for engines and added 40 CFR 63 Subpart CCCCC for gasoline tanks.</p> <p>4. Revised permit as needed to address proposed facility changes described below.</p> <p>5. Revised the equipment list to include new and replaced equipment.</p> <p>6. Incorporated pending minor permit revisions.</p>
Att. B, Condition I.G			x		This condition listed equipment that has been shutdown. It is now obsolete. See further discussion below.
Att. B, Condition II.B	x			x	This condition included requirements for New Source Performance Standard (NSPS) and Non-NSPS affected facilities at the primary crushing operation. The entire primary crushing operation is now subject to NSPS. Also, NSPS and non-NSPS requirements have been included in one central location.

Condition No.	Determination				Comments
	Revise	Keep	Delete	Stream-line	
Att. B, Condition II.C	x				References to shutdown equipment and non-NSPS testing requirements have been removed. Also, performance testing frequencies have been revised to ensure that the lower synthetic minor emission limits are consistently met.
Att. B, Condition III	x				The new permit references NSPS and non-NSPS requirements which are in a central location. Removed requirements for shutdown equipment.

2. Discussion of Permit Changes

- a. Establishment of voluntarily accepted facility-wide emission limits for non-fugitive emissions of PM, PM₁₀, and SO₂ in accordance with A.A.C. R18-2-306.02.

By accepting limits FMSI will be classified as a minor source under the PSD permit program. FMSI will still be classified as a major source under the Title V permitting program.

In order to support the requested facility-wide limitations, FMSI has proposed a maximum allowable material throughput rate of 43,800,000 tons of material processed per year before the wet scrubbers are replaced with more efficient cartridge dust collectors and 55,845,000 tons per year after replacement. Rolling 12-month total material throughput limits with associated tracking have been included in the permit to address both pre- and post-replacement scenarios. In addition to the annual material throughput limits, FMSI's permit includes a limitation on the number of pounds of PM and PM₁₀ that may be emitted from point sources. Also, FMSI is not permitted to begin operation of the new high pressure grinding roll operation until more efficient dust collectors replace the designated wet scrubbers.

The Permittee is also required to calculate monthly and 12-month rolling total PM, PM₁₀ and SO₂ emission rates in order to show compliance with the limits. In conducting these calculations, the Permittee must assume that PM and PM₁₀ emission factors (and therefore emission rates) are equal unless otherwise demonstrated. For future equipment changes, the Permittee may propose in the application and the ADEQ may approve PM and PM₁₀ emission factors that differ from each other.

In order to demonstrate compliance with the proposed limits, FMSI provided emission test data for each existing wet scrubber. FMSI accounted for emissions for the proposed cartridge dust collectors, using the vendor emission guarantee of 0.002 grains per dry standard cubic foot for each collector.

b. Equipment Shutdown

The following operations identified in operating permit #M190699P2-99, Attachment B, Condition I.G have been shutdown:

Equipment	Identification Number
Sierrita (1976) Primary Crushers	001
Esperanza Primary Crusher	034
Esperanza Secondary & Tertiary Crushers	039-040
Esperanza Fine Ore bin Discharge	035-036
Molybdenum Roaster – Maintenance Stack	056
Two Raw Material Storage Bins (2 fabric filter bin vents)	046
Portable Primary Crusher Conveyor Transfers	070
Esperanza #8 and #9 Conveyor Transfer	071
Sierrita 7A Bin (2 screens and transfer point)	074
Twin Buttes Primary Crusher	101
Twin Buttes Belts A-D	103
Stacker to Twin Buttes Coarse Ore Stockpile	106

Attachment “B”, Conditions I.G, and II.D.4 from the previous permit have been removed from this permit. The Permittee is required to obtain the appropriate permit revision before operating any of the above listed equipment.

c. Proposed Facility Changes

i. Backup Emission Control

FMSI proposes to replace the existing #6 wet scrubber which controls emissions from the Fine Ore Transfer Building with a larger wet scrubber.

ii. Replacement of 10 Existing Crushers

FMSI proposes to replace the 10 remaining Allis-Chalmers crushers (six tertiary crushers and four secondary crushers) with either Svedala H8000 or Sandvik H-8800 crushers. In addition, the 8' by 16' screens associated with the Allis Chalmers crushers will be replaced with 10' by 20' single deck screens.

iii. Fine Crushing Plant Control Systems

FMSI plans to replace the Ducon wet scrubbers which control emissions in the fine crushing plant with cartridge dust collectors. Currently 10 Ducon wet scrubbers are used to control PM and PM₁₀ emissions from various sources within the fine crushing plant. In addition to replacing the 10 wet scrubbers, FMSI proposes to re-design the exhaust system in the fine crushing plant. A separate cartridge dust collector will be installed for each secondary crushing line and each tertiary crushing line in the fine crushing plant. A total of 16 cartridge dust collectors will replace 10 existing wet scrubbers (one cartridge dust collector for each of four secondary crushing and ten tertiary crushing lines; one cartridge dust collector for five conveyor transfer points; and one for the 7B/7C conveyor transfer point). Of these, seven will be exhausted inside the building.

iv. Fine Crushing Plant Capacity

In order to increase the fine crushing plant throughput, FMSI has planned modifications to all existing conveyor belts. In addition, the existing tertiary crushers (Crushers 2, 4, 6, and 8) will be modified to allow for slightly higher throughputs. These modifications do not affect rule applicability, because all equipment in the fine crushing plant is currently subject to NSPS.

v. Sierrita Fine Ore Bin

FMSI proposes to replace each of the nine existing baghouses (source ID 009-017) which currently control particulate emissions from the Sierrita Fine Ore Bin with eight cartridge dust collectors. Exhaust will be reconfigured to accommodate the eight dust collectors.

FMSI also proposes re-route exhaust at the Sierrita Fine Ore Bin in order to eliminate the need for one wet scrubber (ID 116). Particulate emissions from the Sierrita Fine Ore Bin are currently controlled by nine baghouses which will be replaced with dust collectors as described above. At the time of replacement, FMSI will re-route emissions from the wet scrubber (ID 116) to the first

cartridge dust collector.

vi. Quaternary Crushing

The permit application also requested approval to install two (HPGR) crushing systems for quaternary crushing. These systems will further refine material from the Fine Crushing Plant (secondary and tertiary crushing) prior to delivery to the Fine Ore Storage Bin. Emission from the quaternary crushing system (two HPGR crushers, an HPGR Fine Ore Storage Bin, and associated conveyor transfer points) will be controlled using three cartridge dust collectors. One of the cartridge dust collectors in the fine crushing plant will be used to control emissions from two conveyor transfer points associated with conveying the final product to the Sierrita Mill.

vii. Lime Storage

FMSI proposes to install an additional 500-ton lime storage bin. Only the storage capacity will increase. The total throughput and material handling system will remain the same and will, therefore, not increase potential emissions. The PM emissions from this operation are controlled by a wet scrubber.

viii. Primary Flotation

Primary flotation currently consists of over 400 separate small horizontal flotation cells which will be replaced with 25 modern tank flotation cells. This is a wet process with no emissions of particulate matter.

ix. Molybdenum Roaster Maintenance

FMSI proposes the changes described in this section in order to improve molybdenum roaster performance. With these changes, the maximum potential concentrate throughput rate of each roaster is expected to be 4.2 tons per hour or 36,792 tons per year, assuming 8,760 hours of operation per year.

(a) Addition and/or Relocation of Feed Ports:

FMSI proposes to add or relocate feed ports in the molybdenum roaster in order to optimize operation of the roaster. The addition or relocation of feed ports will enable FMSI to distribute roaster feed more evenly assuring that product quality specifications are consistently met. The change will not alter the roaster capacity and will, therefore, not change the amount of sulfur removed or

the resulting SO₂ emission rate.

- (b) Addition of Off-gas “Take-offs” and Relocation or Addition of Hearth Sprays and Burners

Roaster temperature is controlled by the use of burners, off-gas “take-offs” and hearth sprays. Although high temperatures (800 to 1,000 °F) are needed to drive the roasting reaction in the top hearths, over-heating in the lower hearths causes damage to the roasters and can cause sublimation of molybdenum trioxide resulting in lost product. FMSI proposes to improve control of hearth temperatures by adding, removing, or relocating burners and hearth sprays. In addition, gated off-gas “take-offs” will be added to each hearth to assist with hearth cooling.

- (c) Relocation or Addition of Drop Holes

FMSI proposes to adjust the location of the drop holes in the roasters to allow for more even distribution of material as it is transferred to each hearth.

- (d) Addition of Oxygen to the Roasters

Addition of oxygen-enriched air to the roasters will enable more complete oxidation of molybdenum sulfide feed ensuring consistent product quality.

- (e) Installation of Variable Speed Drives on Roaster Off-gas Fans

The two molybdenum roasters are vented to one of two pollution control trains. Exhaust flow is currently routed to the controls and between controls using louvers. The louver system is a strain on the fans and causes them to trip off on occasion. To improve the reliability of the exhaust system, FMSI proposes to install variable speed drives on the two exhaust fans that serve the two molybdenum roasters. The variable speed drives will enable control of exhaust gases by the fans rather than the louvers.

- (f) Installation of a Third Lime Scrubber

FMSI proposes to install a third lime scrubber which will allow FMSI to route gases to the third scrubber during cleaning. This will allow FMSI to continue to operate both roasters during scrubber cleaning. While the actual operating hours of each roaster will likely increase, the

maximum capacity of the roasters will not. Estimates of potential emissions were based on the intrinsic capacity, assuming 8,760 hours of operation per year.

(g) Limestone Forced Oxidation

In order to reduce scrubber plugging due to calcium sulfate (gypsum) buildup, FMSI proposes to retrofit the current lime slurry system that feeds the lime scrubbers with a limestone forced oxidation system. The system will inject air into the lime slurry tank forcing the precipitation of gypsum in the tank rather than in the scrubber. This will allow a higher concentration of lime to be cycled through the scrubber and may result in higher scrubber efficiency.

x. Generator Replacement

FMSI plans to replace the Hydromet #3 headwall generator with a generator of the same capacity. This new generator will be subject to 40 CFR 60 Subpart IIII which has been incorporated into the permit.

VII. PERIODIC MONITORING

A. Mines, Material Transfer, and Concentrators

1. Equipment Subject to Non-NSPS- PM and Opacity Standards

These units are subject to the 20 percent opacity standard under A.A.C. R18-2-702 and particulate matter emission standards under State SIP R9-3-521-A and Pima County Code 17.16.360 and 17.16.050. The Permittee is required to establish a baseline opacity level at the exit of air pollution control equipment under normal representative operating conditions. The Permittee is required to conduct periodic surveys of the visible emissions from the emission units including fugitive and non-fugitive emissions. The Permittee is required to create a record of the date on which the survey was taken, the name of the observer, and the results of the survey. If the visible emissions do not appear to exceed the baseline opacity level, the Permittee would note in the record that the visible emissions were below the baseline opacity, and it did not require a Method 9 to be performed.

If the Permittee finds that on an instantaneous basis the visible emissions appear to be in excess of the baseline opacity level but appear to be below the opacity standard, then the Permittee is required to make a six-minute Method 9 observation.

If this observation indicates opacity in excess of the baseline opacity level but below the opacity standard then the Permittee is required to adjust or repair the controls or the equipment to bring the opacity below baseline level.

If the six-minute reading indicates that the opacity is above both the baseline level

and the opacity standard then the Permittee is required to adjust the process equipment or process control equipment to bring the opacity below the baseline level. In addition, the Permittee must report the event as excess emission.

If the Permittee finds that the visible emissions are less than the baseline opacity, then the Permittee is required to record the source of emission, date, time, and result of the test. The Permittee is required to adopt a similar approach with fugitive dust emissions at the mine. However, rather than establishing baseline opacity level for fugitive emissions the Permittee is required to conduct a visual survey of visible emissions against the 40 percent opacity standard.

ADEQ has determined that the bi-weekly visual survey approach identified in the preceding paragraphs will reasonably assure compliance with the opacity and particulate matter standards. The permit requires a representative stack test every year plus periodically monitoring of stack opacity to fulfill the periodic monitoring requirements for particulate matter emissions. Although no data is available to directly correlate opacity to particulate matter emissions, opacity observation will indicate potential problems with the air pollution control equipment. If corrective actions are taken to rectify the problems associated with the pollution control device, then compliance can be inferred on the basis that the source operates its pollution control equipment in a manner consistent with good air pollution control practices. Opacity above the baseline level but less than the standard does not hold the source in violation of the particulate matter standard, but merely requires the source to identify and alleviate the problem by taking corrective actions to reduce the opacity to less than the baseline level. However, not taking corrective action could potentially hold the source in violation of the permit terms.

Also, it shall be noted that all references to a Method 9 observation shall be construed as meaning a six-minute observation and not a 3-hour performance test.

2. Equipment Subject to NSPS PM and Opacity Standards

These units are subject to the stack opacity standard of 7 percent (unless controlled by a wet scrubbing emission control device) under 40 CFR 60.382(a)(2), the fugitive opacity standard of 10 percent under 40 CFR 60.382(b), and the particulate matter standard of 0.05 grams per dry standard cubic meter under 40 CFR 60.382(a)(1).

For the purposes of periodic monitoring of particulate matter emissions, the Permittee is required to install, calibrate, maintain, and operate monitoring devices for continuous measurement of the change in pressure of the gas stream through the scrubber and the scrubbing liquid flow rate to the scrubber. For the purposes of periodic monitoring of opacity of fugitive emissions, the Permittee is required to adopt the weekly visual survey of visible emissions approach identified above against the applicable fugitive opacity standard of 10 percent.

B. Natural Gas Fired Heaters and Boilers

1. Opacity

The boilers are subject to the opacity standard of 20 percent under the general visible emissions rule in A.A.C. R18-2-702.B. These units burn only natural gas. Natural gas is a clean burning fuel and inspections indicate that there have been no opacity problems. Hence, reduced opacity monitoring is required.

2. PM

The units are also subject to the particulate matter emissions standard in A.A.C. R18-2-724.C.1. This unit burns only natural gas. Natural gas is a clean burning fuel and results in negligible particulate matter emissions. Hence, no monitoring is required when burning natural gas.

C. Generators

1. Stationary Internal Combustion Engines subject to State Rules

a. Opacity

The internal combustion engines are subject to the opacity standard of 40 percent under the general visible emissions rule in A.A.C. R18-2-719.E. The Permittee shall keep records of fuel supplier specifications.

b. Sulfur

The internal combustion engines are subject to the fuel limitation to burn low sulfur oil in rule A.A.C. R18-2-719.F & H. The Permittee shall keep records of fuel supplier specifications.

2. Stationary Internal Combustion Engines subject to New Source Performance Standards

a. For particulate matter, the Permittee shall, for the internal combustion engines equipped with diesel particulate filter, keep records of any corrective action taken after the high back pressure limit of the engine has been reached.

b. For nitrogen oxide emission limitations, the Permittee shall maintain records, including manufacturer specifications, demonstrating that the internal combustion engine meets the horsepower and RPM specifications.

D. Fugitive Sources Monitoring

Fugitive sources are subject to a 20 percent opacity limit and other Article 6 requirements. Periodic monitoring for opacity standard entails visible emissions surveys in accordance with an ADEQ-approved observation plan, by a certified Method 9 observer. If the visible emissions survey indicates that a Method 9 reading may be required, the observer shall do

so, and maintain records of the results. Any observed exceedance of the opacity standard should be reported appropriately.

Article 6 regulations also contain applicable requirements for non-point source emissions. These regulations require the Permittee to employ various control methods to suppress particulate emissions. The permit lists the various methods of dust suppression that may be used. By not restricting the Permittee to use only one of the methods, the permit provides the flexibility required to facilitate employment of effective control measures. Periodic monitoring data for these applicable requirements is conducted in line with the non-point source monitoring plan.

The Permittee shall maintain a Tailing Dam Dust Control Management Plan containing elements like description of the reasonable precautions used to control fugitive dust emissions from the tailing impoundment, including but not limited to the use of the “wet dam” construction method, berm construction techniques to minimize dust emissions, new tailing dam roads shall be capped with native soil and routinely watered as soon as practicable, heavily traveled perimeter roads shall be treated with dust suppressant (e.g., magnesium chloride), and re-vegetation techniques to be used for surface stabilization where practical. If after events like heavy rainfall (sufficient to cause surface runoff and flushing of natural dust suppressing surface salts) the upper most layer becomes susceptible to wind erosion, the Permittee shall implement and document additional control measures.

VIII. PERFORMANCE TESTING

A. Performance Testing

FMSI is required to conduct performance testing on various emission points in order to determine whether the facility is in compliance with permit limits and remains below the PSD major source thresholds.

B. Proposed Testing Frequency

ADEQ has incorporated appropriate testing frequencies into the permit. Tables VII-1 describes the testing frequency prior to the proposed equipment and process changes. Table VII-2 describes the testing frequencies after implementation of the proposed changes.

Table VII-1: TESTING FREQUENCIES PRIOR TO IMPLEMENTATION OF PROPOSED CHANGES

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Source ID 113, Primary crushers 6A and 6B	Wet scrubber 40,000 actual cubic feet per minute (acfm)	PM	Annual

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Fugitive Sources Source ID, 095, Transfer point A2 to A3 Source ID, 069, Transfer Point B2, to B3 Source ID, 096, Transfer Point B3 to B4	None	PM	None
Source ID 112, Tertiary Crushers, Associated Screens, and Transfer Point	#9 wet scrubber (57,000 acfm)	PM	Annual
Source ID 121, Tertiary Crushers, Screens, and Transfer Points	#12 wet scrubber (58,000 acfm)	PM	Annual
Source ID 116, Sierrita 8B to 8C Conveyor Transfer (emission point to be eliminated)	Wet scrubber (8,000 acfm)	PM	Biennial
Source ID 008, Fine Ore Transfer Building	#6 wet scrubber (12,000 acfm)	PM	Biennial
Source ID 075, Scalping screens	#10 wet scrubber (25,500 acfm)	PM	Biennial
Source ID 002-007, Sierrita Fine Crushing	Fine ore wet scrubbers #1, #2, #3, #4, #5, and #7 (58,000 actual cubic feet per minute (acfm) each)	PM	Each scrubber tested annually
Source ID 009-017, Fine Ore Bins	Baghouses #1 (10,500 acfm) #2 - #9 (3000 acfm)	PM	Two representative baghouses per year rotating basis (all tested within the permit term)
Source IDs 018 through 033, #0 to #15 Mill Feed Belt System	Mill Bldg Wet Scrubbers #0, #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, #12, #13, #14, #15 (10,000 acfm each total of 160,000 acfm)	PM	Four tested per year on a rotating basis (each one tested every four years)
Source ID 041, Molybdenum plant – unleached molybdenum	Wet Scrubber 6,400 acfm	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
sulfide dryers			
Source ID 042 Leached & Unleached Molybdenum Sulfide Storage, Screening, and Handling and Source ID 044A, Molybdenum Sulfide Dump Hopper Baghouse	Molybdenum sulfide baghouse 6,000 acfm and dump hopper baghouse	PM	Once every five years
Source IDs 053 and 054, Molybdenum plant leach dryers	#1 and #2 wet scrubbers 6400 acfm each (12,800 acfm total)	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀
Source ID 048, Molybdenum oxide storage screening and handling	Molybdenum oxide baghouse (4,200 acfm)	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀
Source ID 058, Main Roasting	2 cyclones, 2 electrostatic precipitators, 2 lime slurry scrubbers, 2 mist eliminators	PM/PM ₁₀	Annual to include filterable and condensable PM ₁₀
		SO ₂	Annual
Source ID 059, Molybdenum packaging and handling system, cannery	Baghouse (12,000 acfm)	PM	Once every five years
Source ID 118, Molybdenum leach plant	Fume Scrubber	Hydrochloric Acid	None
		Chlorine	
Source ID 063, Lime handling	Wet scrubber (6,400 acfm)	PM	Once every five years
Source ID 093, Road rock crushing and Screening Plant	None	PM	None
Source ID 062, Misc. natural gas sources including heaters and boilers	None	PM	None
		SO ₂	

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Source ID 122 Copper sulfate plant	Dust collector 25,200 acfm	PM	None
Source ID 124, Portable screen plant	None	PM	None
Source ID 125, Magnetic steel recovery plant	None	PM	None
Source ID 123, Decant Solids Handling Equipment	None	PM	None
Source ID, 126 Stationary Engines	None	PM	None
		SO ₂	

Table VII-2: TESTING FREQUENCIES AFTER IMPLEMENTATION OF PROPOSED CHANGES

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Source ID 113, Primary crushers 6A and 6B	Two cartridge dust collectors (30,000 acfm each)	PM	Initial and annual
Source ID, 095, Transfer point A2 to A3 Source ID, 069, Transfer Point B2, to B3 Source ID, 096, Transfer Point B3 to B4	None	PM	None
Source ID 201, 202, 203, and 204, Secondary Crushing Operations (two points vented inside)	Cartridge Dust Collectors (40,500 acfm each)	PM	Initial test and one representative test per year on a rotating basis. This applies only to units that are vented outdoors (Source IDs 201 and 203)
Source ID 301-310, Tertiary Crushing Operations	Cartridge Dust Collectors (27,500 acfm each)	PM	Initial test and two representative tests per year on a rotating basis (all units tested every 5 years). This applies only to units that are vented outdoors (Source IDs 302, 304, 306, 308

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
			and 310)
Source ID 312, Fine Ore Transfer Building	Cartridge Dust Collector (12,000 acfm)	PM	Initial test and biennial thereafter
Source ID 311, Conveyor transfer points	Cartridge Dust Collector (30,000 acfm)	PM	Initial test and biennial testing thereafter
Source ID 401 and 402	Cartridge Dust Collectors (40,500 acfm each)	PM	Initial test and annual testing thereafter
Source ID 403	Cartridge Dust Collector (6,000 acfm)	PM	Initial test and biennial testing thereafter
Source ID 116, Sierrita 8B to 8C Conveyor Transfer (point to be eliminated)	Wet scrubber (8,000 acfm)	PM	Biennial unless the exhaust has been re-routed by the 24th month after permit issuance
Source ID 009-017, Fine Ore Bins	Cartridge dust collectors #1 (10,500 acfm) #2 - #9 (3,000 acfm)	PM	Initial testing and two representative units tested per year, rotating basis (all tested within the permit term)
Source IDs 018 through 033, #0 to #15 Mill Feed Belt System	Mill Bldg Wet Scrubbers #0, #1, #2, #3, #4, #5, #6, #7, #8, #9, #10, #11, #12, #13, #14, #15 (10,000 acfm each total of 160,000 acfm)	PM	Four tested per year on a rotating basis (each one tested every four years)
Source ID 041, Molybdenum plant – unleached molybdenum sulfide dryers	Wet Scrubber 6,400 acfm	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀
Source ID 042, Leached & Unleached Molybdenum Sulfide Storage, Screening, and Handling and Source ID 044A, Molybdenum	Molybdenum sulfide baghouse 6,000 acfm and Dump Hopper Baghouse	PM	Once every five years

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Sulfide Dump Hopper Baghouse			
Source IDs 053 and 054, Molybdenum plant leach dryers	#1 and #2 wet scrubbers 6400 acfm each (12,800 acfm total)	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀
Source ID 048, Molybdenum oxide storage screening and handling	Molybdenum oxide baghouse (4,200 acfm)	PM/PM ₁₀	Biennial to include filterable and condensable PM ₁₀
Source ID 058, Main Roasting	2 cyclones, 2 electrostatic precipitators, 2 lime slurry scrubbers, 2 mist eliminators	PM/PM ₁₀	Annual to include filterable and condensable PM ₁₀
		SO ₂	Annual
Source ID 059, Molybdenum packaging and handling system, cannery	Baghouse (12,000 acfm)	PM	Once every five years
Source ID 063, Lime handling	Wet scrubber (6,400 acfm)	PM	Once every five years
Source ID 093, Road rock crushing and Screening Plant	None	PM	None
Source ID 118, Molybdenum leach plant	Fume Scrubber	Hydrochloric Acid	None
		Chlorine	
Source ID 062, Misc. natural gas sources including heaters and boilers	None	PM	None
		SO ₂	
Source ID 122 Copper sulfate plant	Dust collector 25,200 acfm	PM	None
Source ID 124, Portable screen plant	None	PM	None
Source ID 125, Magnetic steel recovery plant	None	PM	None
Source ID 123, Decant Solids Handling	None	PM	None

Process	Control Device	Pollutant	Renewal Permit Testing Frequency
Equipment			
Source ID, 126 Stationary Engines	None	PM	None
		SO ₂	

IX. COMPLIANCE ASSURANCE MONITORING (CAM)

CAM is applicable to emission units at major sources with uncontrolled potential emissions equal to or greater than 100 tons per year (10 & 25 tons per year for HAP) that are subject to a non-exempted emission limitation or standard and that are equipped with a control device to achieve compliance with the subject limitation or standard. The molybdenum roaster meets the CAM criteria for SO₂ but is exempt from CAM because the permit requires the use of a continuous emission monitoring system to continuously monitor for compliance with SO₂ limits.

The emission units listed in Table VIII-1 are subject to CAM for particulate matter emissions. Table VIII-1 also summarizes the monitoring approach for each type of control system. FMSI submitted CAM plans with the application for the different types of control systems used to control PM and PM₁₀ emissions. These plans have been carefully reviewed, modified, and the ADEQ-approved version included in the permit.

Table VIII-1: SUMMARY OF CAM REQUIREMENTS

Control Device	Emission Units	Monitoring Approach
Wet Scrubbers	113, Primary crushing 075, Scalping screens 002-007, Secondary crushing 008, Fine ore transfer building 112, 121, Tertiary crushing 116, 8B to 8C transfer point 053, 054, Molybdenum leach dryers	Scrubber liquid flow rate and pressure differential are measured at least every hour. Three-hour block averages are computed from the measurements. Any three-hour block average that deviates from the average obtained during the most recent successful performance test by more than 30 percent is an excursion.
Baghouse	009-017, Fine ore storage and handling	Pressure differential across the baghouse is required to be read daily. Any pressure differential reading that is outside the range included in the permit is an excursion. In addition, at least one visible emission observation shall be conducted on each day of the operation. If visible emissions are

Control Device	Emission Units	Monitoring Approach
		observed, a Method 9 opacity reading is required. An excursion occurs when the Method 9 reading is above the baseline opacity level previously determined for that emission unit.
Dust collectors	122, Copper sulfate plant 201-204, Secondary crushing 301-312, Tertiary crushing 401-403, High pressure grinding roll crushing	Pressure differential across the dust collector is required to be read daily. Any pressure differential reading that is outside the range included in the permit is an excursion. In addition, visible emissions observations must be conducted on a daily basis. An excursion occurs when visible emissions are observed.
Electrostatic precipitators	058, Molybdenum roasting	Primary current and voltage must be monitored continuously. One-hour averages must be computed from the continuous data. Any one-hour average that is outside the range included in the permit is an excursion.

X. INSIGNIFICANT ACTIVITIES

The following activities were proposed as insignificant by the Applicant and are approved as such by the Department.

1. Diesel and fuel oil storage tanks with a capacity of 40,000 gallons or less.
2. Batch mixers with rated capacity of five cubic feet or less
3. Equipment using water, water and soap or detergent, or a suspension of abrasives in water for purposes of cleaning or finishing
4. Aerosol can usage
5. Acetylene, butane, and propane torches
6. Blast-cleaning equipment using a suspension of abrasive in water and any exhaust system or collector serving them exclusively
7. Lubricating system reservoirs
8. Hydraulic system reservoirs
9. Adhesive use which is not related to production
10. Production of hot/chilled water for onsite use not related to an industrial process
11. General vehicle maintenance and servicing activities
12. Storage cabinet for flammable materials
13. Housekeeping activities and associated products used for cleaning purposes, including collected, spilled, and accumulated materials at the source, including operation of fixed vacuum cleaning systems for such purposes

14. General office activities such as paper shredding and copying, photographic activities, and blueprinting
15. Vacuum cleaning systems where the system is used exclusively for industrial or commercial use
16. Chemical storage associated with water and wastewater treatment where the water is treated for consumption and/or use within the permitted facility (limited to chemicals not listed in 40 CFR 68.13, chemicals listed in 40 CFR 68.13 but stored in quantities less than threshold levels, and not subject to any applicable regulation under the Act or the Arizona Revised Statutes)
17. The collection, transmission, liquid treatment and solids treatment process and domestic type wastewater and sewage treatment, or treatment facilities, including septic tank systems which treat only domestic type wastewater and sewage
18. Chemical storage and process holding tanks (limited to chemicals not listed in 40 CFR 68.13, chemicals listed in 40 CFR 68.13 but stored in quantities less than threshold levels, and not subject to any applicable regulation under the Act or the Arizona Revised Statutes)
19. Storage and piping of natural gas or liquefied petroleum gas
20. Petroleum product storage tanks less than 40,000 gallons containing lubricating oil, transformer oil, or used oil
21. Distribution and piping of diesel fuel, lubricating oil, used oil, and transformer oil
22. Storage and handling of drums or other transportable containers where the containers are sealed during storage, and covered during loading and unloading (includes containers of Resource Conservation and Recovery Act waste and used oil)
23. Used oil collection and storage
24. Use of pesticides, fumigants, and herbicides
25. Air lance operations
26. Railroad maintenance
27. Cleanup of railcars
28. Cleanup of clogged chutes
29. Street and parking lot striping
30. Maintenance, repair or dismantlement of buildings, utility lines, pipelines, wells, and other structures that do not constitute an emissions unit
31. Surface impoundments such as ash ponds, cooling ponds, evaporation ponds, settling ponds, and storm water ponds
32. Pump/motor oil reservoirs, such as gearbox lubrication.
33. Transformer vents
34. Caulking operations that are not part of a production process.
35. Electric motors
36. Cathodic protection systems
37. Soil gas sampling
38. Filter draining
39. General vehicle maintenance and servicing activities at the source.
40. Station transformers
41. Circuit breakers
42. Generation unit gas vents
43. Wet cyclones and the ball mill circuits operated at the concentrators.
44. Copper and molybdenite flotation
45. General research activities such as testing water mist/spray controls for dust abatement
46. Filter press vacuum manifolds

XI. LIST OF ABBREVIATIONS

A.A.C.	Arizona Administrative Code
ADEQ	Arizona Department of Environmental Quality
AQD	Air Quality Division
CAM	Compliance Assurance Monitoring
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
FFDC	Fabric Filter Dust Collector
FMSI	Freeport-McMoRan Sierrita Incorporated
hr	Hour
HP	High Pressure
HPGR	High Pressure Grinding Roll
lb	Pound
MMBtu	Million British Thermal Units
MW	Megawatts
MO ₃	Molybdenum trioxide
NOV	Notice of Violation
NO _x	Nitrogen Oxide
NSPS	New Source Performance Standards
PCC	Pima County Code
PM	Particulate Matter
PM ₁₀	Particulate Matter Nominally less than 10 Micrometers
PSD	Prevention of Significant Deterioration
PSEU	Pollutant Specific Emission Unit
PTE	Potential-to-Emit
SO ₂	Sulfur Dioxide
SX/EW	Solvent Extraction & Electrowinning Plant
TPY	Tons per Year
EPA	Environmental Protection Agency
VOC	Volatile Organic Compound

Source Opacity Observation Plan

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
	NSPS Building emissions	x			x	x	10%	
	Non NSPS Building Emissions	x			x		20%	
Mine Operations								
88	Drilling Operations	X			X		20%	
89	Ammonium Nitrate Storage	X			X		20%	
66	Blasting Operations	X			X		20%	
97	Haul Truck Loading and Dumping	X			X		20%	
77	Unpaved Roads	X			X		20%	
Primary Crushing								
	Primary Crusher 6A and associated feed belts		X	X		X	7%	X
	Primary Crusher 6B and associated feed belts		X	X		X	7%	X
	Wet Scrubber		X	X		X	7%	X
113 A	Cartridge Collector (when installed)		X	X		X	7%	X
113 B	Cartridge Collector (when installed)		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Overland Conveying								
95	Sierrita A2 to A3 Conveyor Transfer		X	X			20	X
72	A3 Stacker to Sierrita Coarse Ore Stockpile	X			X		20	
69	Sierrita B2 to B3 Conveyor Transfer		X	X			20	X
96	Sierrita B3 Conveyor to B4 Stacker Transfer		X	X			20	X
102	B4 Stacker to Sierrita Coarse Ore Stockpile	X			X		20	
Fine Ore Crushing -Secondary and Tertiary Crushing Plant								
75	No. 1 Secondary Scalping Screen		X	X		X		
	No. 3 Secondary Scalping Screen		X	X		X		
	No. 4 Secondary Scalping Screen		X	X		X		
	#10 Wet Scrubber-Sierrita Secondary Scalping Screens		X	X		X	7%	X
002-007	Eight (8) Coarse Ore Reclaim Feeders		X	X		X		
	Four (4) Coarse Ore Reclaim Belts		X	X		X		
	No. 1,3 and 4 Secondary Crushers		X	X		X		
	No. 1, 3 and 4 Secondary Discharge Screens		X	X		X		
	Tertiary Feed Bin		X	X		X		
	Ten (100 Tertiary Crusher Feeder Belts		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
002-007	No. 1, 3, 5, 7, 9, and 10 Tertiary Crushers		X	X		X		
	No. 1, 3, 5, 7, 9, and 10 Tertiary Discharge Screens		X	X		X		
	Conveyors 7A, 7B, 7C, 8A, 8D, 8B		X	X		X		
	#1 Wet Scrubber - Sierrita Secondary Crushing Building		X	X		X	7%	X
	#2 Wet Scrubber – Sierrita Secondary Crushing Building		X	X		X	7%	X
	#3 Wet Scrubber – Sierrita Secondary Crushing Building		X	X		X	7%	X
	#4 Wet Scrubber – Sierrita Secondary Crushing Building		X	X		X	7%	X
	#5 Wet Scrubber – Sierrita Secondary Crushing Building		X	X		X	7%	X
	#7 Wet Scrubber – Sierrita Secondary Crushing Building		X	X		X	7%	X
008	7B to 7C Conveyor Transfer Point		X	X		X		
	#6 Wet Scrubber		X	X		X	7%	X
112	#8 Tertiary Crusher		X	X		X		
	#8 Tertiary Discharge Screen		X	X		X		
	#6 Tertiary Crusher		X	X		X		
	#6 Tertiary Discharge Screen		X	X		X		
	#9 Wet Scrubber		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
121	#2 Tertiary Crusher		X	X		X		
	#2 Tertiary Discharge Screen		X	X		X		
	#3 Tertiary Discharge Screen		X	X		X		
	#4 Tertiary Crusher		X	X		X		
	#4 Tertiary Discharge Screen		X	X		X		
	7C Head Pulley		X	X		X		
	8D/8B Transfer Point		X	X		X		
	7A/7B Transfer Point		X	X		X		
	#12 Wet Scrubber		X	X		X	7%	X
201	#1 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X		
	#1 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#1 Scalping Screen		X	X		X		
	8A Conveyor Belt (fugitives pick up on conveyor)		X	X		X		
	#1 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#1 Secondary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up on belt from #1 Secondary Discharge Screen)		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
201	RB-1 Conveyor Belt (emissions pick-up on belt from #1 Secondary Discharge Screen)		X	X		X		
	#1 Secondary Dust Collector		X	X		X	7%	X
202	#2 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X	10% from bldg	
	#2 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#2 Scalping Screen		X	X		X		
	8A Conveyor Belt (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#2 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#2 Secondary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up on belt from #2 Secondary Discharge Screen)		X	X		X		
	RB-1 Conveyor Belt (emissions pick-up on belt from #2 Secondary Discharge Screen)		X	X		X		
	#2 Secondary Dust Collector – VENTED INDOORS		X	X		X		
203	#3 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X		
	#3 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#3 Scalping Screen		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
203	8A Conveyor Belt (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#3 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#3 Secondary Discharge Screen		X	X		X		
	7B Conveyor (emissions P.U. on belt from #3 Sec. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions P.U. on belt from #3 Sec. Disch. Screen)		X	X		X		
	#3 Secondary Dust Collector		X	X			7%	X
204	#4 Coarse Ore Reclaim Belt (Apron Feeder)		X	X		X	10% from bldg	
	#4 Coarse Ore Reclaim Feeders (2 Feeders – North and South)		X	X		X		
	#4 Scalping Screen		X	X		X		
	8A Conveyor (fugitive emissions pick-up on conveyor belt)		X	X		X		
	#4 Secondary Crusher (emissions pick-up from discharge screen)		X	X		X		
	#4 Secondary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #4 Sec. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #4 Sec. Disch. Screen)		X	X		X		
	#4 Secondary Dust Collector - VENTED INDOORS		X	X		X		

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
301	Coarse Ore Bin		X			X		
	#1 Tertiary Crusher Feeder Belt		X	X		X		
	No. 1 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 1 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #1 Tertiary Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #1 Tert. Disch. Screen)		X	X		X		
	#1 Tertiary Dust Collector		X	X		X	7%	X
302	Coarse Ore Bin		X			X		
	#2 Tertiary Crusher Feeder Belt		X	X		X		
	#2 Tertiary Crusher		X	X		X		
	#2 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #2 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #2 Tert. Disch. Screen)		X	X		X		
	#2 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
303	Coarse Ore Bin		X			X		
	#3 Tertiary Crusher Feeder Belt		X	X		X		
	No. 3 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#3 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #3 Tert. Disc. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #3 Tert. DiscH. Screen)		X	X		X		
	#3 Tertiary Dust Collector		X	X		X	7%	X
304	Coarse Ore Bin		X			X		
	#4 Tertiary Crusher Feeder Belt		X	X		X		
	#4 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#4 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #4 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #4 Tert. Disch. Screen)		X	X		X		
	#4 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
305	Coarse Ore Bin		X			X		
	#5 Tertiary Crusher Feeder Belt		X	X		X		
	No. 5 Tertiary Crusher		X	X		X		
	No. 5 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #5 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #5 Tert. Disch. Screen)		X	X		X		
	#5 Tertiary Dust Collector		X	X			7%	X
306	Coarse Ore Bin		X			X		
	#6 Tertiary Crusher Feeder Belt		X	X		X		
	#6 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	#6 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #6 Tert Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #6 Tert. Disch. Screen)		X	X		X		
	#6 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
307	Coarse Ore Bin		X			X		
	#7 Tertiary Crusher Feeder Belt		X	X		X		
	No. 7 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 7 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #7 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #7 Tert. Disch. Screen)		X	X		X		
	#7 Tertiary Dust Collector		X	X		X	7%	X
308	Coarse Ore Bin		X	X		X		
	#8 Tertiary Crusher Feeder Belt		X	X		X		
	#8 Tertiary Crusher		X	X		X		
	#8 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #8 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #8 Tert. Disch. Screen)		X	X		X		
	#8 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
309	Coarse Ore Bin		X			X		
	#9 Tertiary Crusher Feeder Belt		X	X		X		
	No. 9 Tertiary Crusher (emissions pick-up at feed chute)		X	X		X		
	No. 9 Tertiary Discharge Screen		X	X		X		
	7B Conveyor (emissions pick-up on belt from #9 Tert. Disch. Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #9 Tert. Disch. Screen)		X	X		X		
	#9 Tertiary Dust Collector		X	X		X	7%	X
310	Coarse Ore Bin		X			X		
	#10 Tertiary Crusher Feeder Belt		X	X		X		
	No. 10 Tertiary Crusher		X	X		X		
	No. 10 Tertiary Discharge Screen		X	X		X		
	7B Conveyor Belt (emissions pick-up from #10 Tertiary Discharge Screen)		X	X		X		
	RB-1 Conveyor (emissions pick-up on belt from #10 Tert. Disch. Screen)		X	X		X		
	#10 Tertiary Dust Collector		X	X		X	7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
311	7A/7B Conveyor Transfer Point		X	X		X		
	7C Head Pulley		X	X				
	8D/RB-1 (RB-1 was formerly 8B) Conveyor Transfer Point		X	X		X		
	RB-4 to RB-5 Conveyor Transfer Pt		X	X		X		
	RB-5 to 8B Conveyor Transfer Point		X	X		X		
	CTP Dust Collector (Existing No. 12)		X	X		X	7%	X
312	7B to 7C Conveyor Transfer Point		X	X		X		
	7C Conveyor Belt		X	X				
	Transfer House Dust Collector		X	X		X	7%	X
401	#1 HPGR Crusher		X	X		X		
	HPGR Product Conveyor RB-4		X	X				
	(Discharge of Crusher to Conveyor)		X	X				
	#1 HPGR Belt Feeder RFB-1		X	X				
	HPGR Fine Ore Bin		X	X		X		
	#1 HPGR Dust Collector		X	X			7%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
402	#2 HPGR Crusher		X	X		X		
	HPGR Product Conveyor RB-3		X	X				
	(Discharge of Crusher to Conveyor)		X	X				
	#2 HPGR Belt Feeder RFB-2		X	X				
	HPGR Fine Ore Bin		X	X		X		
	#2 HPGR Dust Collector		X	X		X	7%	X
403	RB-2 to RB-3 Conveyor Transfer Point		X	X		X		
	HPGR CTP Dust Collector		X	X		X	7%	X
Fine Ore Storage and Handling and Sierrita Mills								
116	8B/8C Conveyor Transfer Point		X	X				
	Wet Scrubber - 8B to 8C Conveyor Transfer		X	X			20%	X
009-017	Fine Ore Bin and Tripper Conveyor		X	X				
009	#1 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
010	#2 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
011	#3 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
012	#4 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
013	#5 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
014	#6 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
015	#7 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
016	#8 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
017	#9 Baghouse - Sierrita Fine Ore Bin		X	X			20%	X
018	#0 Fine Ore Feeder Belts (3ea.)		X	X				
	# 0 Mill Collector Belt		X	X				
	# 0 Mill Feed Conveyor		X	X				
	# 0 Wet Scrubber - Sierrita Mill		X	X			20%	X
019	# 1 Fine Ore Feeder Belts (3 ea.)		X	X				
	#1 Mill Collector Belt		X	X				
	# 1 Mill Feed Conveyor		X	X				
	# 1 Wet Scrubber - Sierrita Mill		X	X			20%	X
020	# 2 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 2 Mill Collector Belt		X	X				
	# 2 Mill Feed Conveyor		X	X				
	# 2 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
021	# 3 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 3 Mill Collector Belt		X	X				
	# 3 Mill Feed Conveyor		X	X				
	# 3 Wet Scrubber - Sierrita Mill		X	X			20%	X
022	# 4 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 4 Mill Collector Belt		X	X				
	# 4 Mill Feed Conveyor		X	X				
	# 4 Wet Scrubber - Sierrita Mill		X	X			20%	X
023	# 5 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 5 Mill Collector Belt		X	X				
	# 5 Mill Feed Conveyor		X	X				
	# 5 Wet Scrubber - Sierrita Mill		X	X			20%	X
024	# 6 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 6 Mill Collector Belt		X	X				
	# 6 Mill Feed Conveyor		X	X				
	# 6 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
025	# 7 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 7 Mill Collector Belt		X	X				
	# 7 Mill Feed Conveyor		X	X				
	# 7 Wet Scrubber - Sierrita Mill		X	X			20%	X
026	# 8 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 8 Mill Collector Belt		X	X				
	# 8 Mill Feed Conveyor		X	X				
	# 8 Wet Scrubber - Sierrita Mill		X	X			20%	X
027	# 9 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 9 Mill Collector Belt		X	X				
	# 9 Mill Feed Conveyor		X	X				
	# 9 Wet Scrubber - Sierrita Mill		X	X			20%	X
028	# 10 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 10 Mill Collector Belt		X	X				
	# 10 Mill Feed Conveyor		X	X				
	# 10 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
029	# 11 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 11 Mill Collector Belt		X	X				
	# 11 Mill Feed Conveyor		X	X				
	# 11 Wet Scrubber - Sierrita Mill		X	X			20%	X
030	# 12 Fine Ore Feeder Belts (4 ea.)		X	X				
	# 12 Mill Collector Belt		X	X				
	# 12 Mill Feed Conveyor		X	X				
	# 12 Wet Scrubber - Sierrita Mill		X	X			20%	X
031	# 13 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 13 Mill Collector Belt		X	X				
	# 13 Mill Feed Conveyor		X	X				
	# 13 Wet Scrubber - Sierrita Mill		X	X			20%	X
032	# 14 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 14 Mill Collector Belt		X	X				
	# 14 Mill Feed Conveyor		X	X				
	# 14 Wet Scrubber - Sierrita Mill		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
033	# 15 Fine Ore Feeder Belts (3 ea.)		X	X				
	# 15 Mill Collector Belt		X	X				
	# 15 Mill Feed Conveyor		X	X				
	#15 Wet Scrubber - Sierrita Mill		X	X			20%	X
063	Lime Unloading & Handling Processes		X	X			20%	X
	Wet Scrubber		X	X			20%	X
	Alternate Wet Scrubber		X	X			20%	X
073	Copper/Moly Concentrate Storage Areas	X			X		20%	
Molybdenum Processing								
041	Unleached MoS Dryers - Three (3) Dryers		X	X				
	Wet Scrubber - Unleached MoS Dryers		X	X			20%	x
042	Leach & Unleach Moly Sulfide Storage, Screening and Handling		X	X				
	Moly Sulfide Baghouse		X	X			20%	X
	Alternate Moly Sulfide Baghouse		X	X			20%	X
044	Moly Sulfide Dump Hopper (includes 3 dump hoppers)		X	X			20%	X
044 A	Moly Sulfide Dump Hopper Baghouse on 1 Dump Hopper		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
045	Moly Sulfide Screw Conveyor Loadout		X	X			20%	X
117	Moly Sulfide Screw Conveyor Loadout #2		X	X			20%	X
048	Moly Oxide Storage, Screening and Handling		X	X				
	Moly Oxide Baghouse		X	X			20%	X
053/ 054	Leached MoS Dryers - Three (3) Sets of Dryers		X	X				
053	#1 Wet Scrubber - Moly Leach Dryers		X	X			20%	X
054	#2 Wet Scrubber - Moly Leach Dryers		X	X			20%	X
059	Moly Packaging Processes		X	X			20%	
	Cannery Baghouse		X	X			20%	X
058	Two (2) #1 and #2 Molybdenum Roasters controlled by 2 cyclones, 2 ESP, 2 lime slurry scrubbers, 2 Brinks mist eliminators		X	X				
	Main Roaster Stack		X	X				X
118	Molybdenum Leach Plant	X			X		20%	
	Solar Drying Screw Conveyor		X	X			20%	X
	Solar Drying Pad	X			X		20%	
	Fume Scrubber		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
119	Rhenium Recovery Operation	X			X		20%	
Natural Gas Heaters and Boilers								
062	Boiler - Moly Leach Heating (Primary)		X	X			15%	X
	NG Heater- Moly Dryer Oil Heating System 2		X	X			15%	
	NG Heater- Moly Dryer Oil Heating System 1		X	X			15%	
	Rhenium Plant Water Heater		X	X			15%	
	Change Room Boiler		X	X			15%	
	SX Electrolyte Heater		X	X			15%	
	Moly Leach Heating (Standby)		X	X			15%	
	EW Electrolyte Heater		X	X			15%	
	Moly Autoclave Boiler		X	X			15%	
	EW Cathode Wash Heater		X	X			15%	
	Moly Briquette Heater		X	X			15%	
	Mine Truck Shop Wash Heater		X	X			15%	
	Copper Sulfate Boiler		X	X			15%	
	Miscellaneous fuel-burning equipment fired at a sustained rate of less than 1 million BTU/hr		X	X			15%	
ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required

Miscellaneous Crushing and Screening Plants								
93	Road Rock Crushing & Screening Plant		X	X			20%	X
120	Miscellaneous Screens and Grizzlies		X	X			20%	
124	Portable Screen Plant - Hopper		X	X			20%	
	Portable Screen Plant - Screen		X	X			20%	
125	Magnetic Steel Recovery Plant		X	X		X	7%	X
	Coarse Conveyor No. 1		X	X		X	7%	X
	Magnet No. 1		X	X				X
	Metal Ball Scrap Conveyor No. 1		X	X		X	7%	X
	Fines Conveyor No. 1		X	X		X	7%	X
	Fines Conveyor No. 2		X	X		X	7%	X
	Magnet No. 2		X	X				X
	Metal Chips Conveyor No. 2		X	X		X	7%	X
	Radial Stacker		X	X			20%	
	125 KW (168 hp) Diesel Generator		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Copper Sulfate Plant								

122	One (1) Crystallizer Feed Tank	wet sources with no visible emissions						
	Five (5)Cooling Tanks							
	Three (3) Wet Crystal Cyclones							
	Two (2) Wet Crystal Centrifuges							
	One (1) Magnesium Carbonate Bin and Feeder Belt (2 Transfer Points)		X	X				
	One (1) Dryer Feed Belt (3 Transfer Points)		X	X				
	One (1) Dryer Feed Hopper		X	X				
	One (1) Fluid Bed Dryer		X	X				
	One (1) Vibrating Product Double Deck Screen		X	X				
	Product and Magnesium Carbonate / Bagging Bin Screw Conveyor (3 Transfer Points)		X	X				
	One (1) Flow Aid Bin		X	X				
	One (1) Product Bagging Bin		X	X				
	One (1) Product Bagging Feeder Conveyor (2 Transfer Points)		X	X				
	One (1) Bag Filling Machine		X	X				
	One (1) Product Recovery Cyclone		X	X				
	Copper Sulfate Product Recovery Collector		X	X			20%	X

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
Decant Solids and Handling								

123	Feed Hopper	X						
	Screw Conveyor		X					
	Loader	X						
Stationary Engines								
126	Tailing Thickener Diesel Generator		X	X			20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Mill Reservoir Fire Water Pump		X	X			20%	
	Molybdenum Roaster Emergency Generator		X	X			20%	
	CEMS Emergency Generator		X	X			20%	
126	Hydromet #3 Headwall Generator to be replaced with 1600 hp engine		X	X		X	20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Hydromet 07 Pond Pump		X	X			20%	
	Hydromet Twin Buttes Emergency Fire Water Back-Up		X	X			20%	
	Radio Hill Generator		X	X			20%	
	West Robo Shack Generator		X	X			20%	
	Truck Shop Generator		X	X			20%	
	Love Shack Generator		X	X			20%	

ID	Source Description	Fugitive Source	Non-Fugitive Source	Point Source	Non-point Source	NSPS	Opacity Standard	Baseline Opacity Required
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126	Dispatch Tower Generator		X	X			20%	Survey only required when in operation. Baseline will be difficult to obtain.
	Mine Engineering Generator		X	X			20%	
	Administration Bldg. Generator		X	X			20%	
	Primary Crusher Basement Generator		X	X			20%	
Miscellaneous and Fugitive Emission Sources								
76	Organic Storage Tanks - SX #1, #2, #3	X			X		20%	
78	Gasoline Storage Tanks	X			X		20%	
87	Sierrita Tailing Impoundment	X			X		20%	
105	Twin Buttes Electrowinning Tankhouse	X			X		20%	
	Material Handling (not specified above)	X			X		20%	
	Cooling towers	X		X			20%	
	Street Sweeping	X			X		20%	